ENTOMOLOGICAL NEWS

FEBRUARY 1953

Vol. LXIV **No. 2**

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PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
1900 RACE STREET, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $5.00 domestic; $5.30 foreign; $5.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for in paragraphs (d-2), Section 34.40, P. L. & R. of 1948, authorized April 19, 1943.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at Prince and Lemon Sts., Lancaster, Pa., and the Academy of Natural Sciences, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: E. J. F. MARX, V. S. L. PATE, M. E. PHILLIPS, and J. A. G. REHN.

Subscription price, per yearly volume of 10 numbers: Domestic, $5.00; Foreign, $5.30; Canada, $5.15—U. S. Currency.

SUBSCRIPTIONS, ADVERTISEMENTS: All communications and remittances to be addressed to **ENTOMOLOGICAL NEWS, 1900 Race Street, Philadelphia 3, Pa.**

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

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ENTOMOLOGICAL NEWS

VOL. LXIV FEBRUARY, 1953 No. 2

The Wasps of Penikese Island, Buzzards Bay, Massachusetts (Hymenoptera)

By KENNETH W. COOPER, University of Rochester, Rochester, N. Y.

Penikese Island is a roughly L-shaped, tiny remnant of the Falmouth (or Buzzard Bay) terminal moraine, woodsless and windswept, lying in the waters of Buzzards Bay approximately one mile north of Cuttyhunk. Thus it is nearly at the end of the Elizabeth chain of islands that extends west southwest from Woods Hole, Massachusetts, and that separates the waters of Buzzards Bay from Vineyard Sound. The larger limb of Penikese runs due south and is no more than five-eighths of a mile in length and but a quarter of a mile in greatest width. The smaller limb, known as Tub Point, is joined to the main island by a barrier beach, runs to the southeast somewhat less than three-eighths of a mile, and is not quite a quarter of a mile wide at its greatest breadth. The island is low in profile, rising at no point more than 85 feet above sea level. Perhaps 80 acres of land lie above the limits of high tide, and fully half of Penikese's acreage lies between sea level and the 20-foot contour line. More or less temporary fresh-water ponds, as well as brackish ponds, stand in certain hollows of the island, and nearly two acres of marsh occupy the northeastern margin of the main body of Penikese (map in Lewis, 1924). The closest reach of the mainland of Massachusetts is Mishaum Point, south of New Bedford, approximately 4.4 miles NNW of Penikese. Further details of Penikese may be found in the accounts by Jordan (1874), Hollick (1901), Lewis (1924), Coker (1926), Fogg

(1930), and Woodworth and Wigglesworth (1934). Hollick has summed up the island's attributes, declaring Penikese to be ". . . about as barren and unattractive a pile of gravel and bowlders as can well be imagined."

It was on Penikese, in 1873, that Louis Agassiz founded the first seaside laboratory in North America, the Anderson School of Natural History, and interest in the island and its fauna and flora stems partly from its biologically notable past. When Agassiz brought his students there, Penikese was treeless, virtually shrubless, and covered with little more than common types of flowering plants and grassy pasturage for the sheep grazed there (Jordan, 1874), although when first known, at the start of the 17th Century, it appears to have been covered with woods in which a cedar predominated (*v.* Fogg, 1930).

Since Agassiz' time the island has been employed as a turkey farm (in the early 1890s at least; see Morse, 1894), as a sheep pasturage until 1910, and from 1905–1921 a leper colony was maintained on Penikese. Not unexpectedly a sizeable floral change came about in this period, man probably being the primary agent of dissemination. Shaw (in Lewis, 1924) and, especially, Fogg (1930) give valuable and detailed accounts of the flora of Penikese, and discuss in considerable detail the extent and nature of the floral changes that have occurred there. Today the island has a few introduced poplars and other trees, and a fair number of shrubs are established, including staghorn sumach, scrub willows, and common elder, which provide potential nesting sites for twig-dwelling wasps. As a whole the flora is still overwhelmingly an herbaceous one, and along with the large colony of common and roseate terns that nest at the north end of Penikese, common plants such as *Agrostis alba, Agropyron repens, Anthoxanthum odoratum, Holcus lanatus, Plantago, Cakile, Capsella, Rumex, Nepeta* and *Achillea* are today fully as typical floral elements of Penikese as they were in Agassiz' time, nearly 80 years ago. *Daucus carota,* at the flowers of which so many wasps were captured in 1947, is a newcomer to Penikese since Agassiz' day.

On August 7, 1923, biologists from Woods Hole celebrated the fiftieth anniversary of the founding of Agassiz' laboratory by undertaking a one-day biological survey of Penikese, the results of which have been brought together in interesting catalogs of the flora (Lewis, 1924) and fauna (Coker, 1926). Again, on August 3, 1947, a similar party of biologists commemorated (somewhat prematurely) the 75th anniversary by another collecting trip on Penikese. The day was sunny and hot but, unhappily for the hymenopterist, a stiff, unrelenting breeze made the survey of flying insects difficult, except in protected hollows and lees. Collecting began at approximately 11:30 AM and was over by 3:30 PM. The wasps listed below were collected by Drs. C. Nelson, H. Knudsen, J. A. Moore, P. W. Whiting and myself, and remained in my possession for identification; most specimens are now on deposit in the U. S. National Museum. The nomenclature in the following list is that of Muesebeck, Krombein and Townes (1951) for all but the ants; for the latter I have followed Creighton (1950). In each instance bracketted initials identify the collector.

Chrysididae

Chrysis (Chrysogona) perpulchra Cresson.—1 ♂ (PWW). I have also taken this chrysid at Woods Hole in July; the normal host is said to be *Sceliphron*, a common wasp of Penikese.

Chrysis (Tetrachrysis) coerulans Fabr.—1 ♂, at flowers of *Daucus carota* (KWC); also common at Woods Hole from June through mid-September.

Tiphiidae

Tiphia intermedia Mall.—1 ♀, 4 ♂♂ at *Daucus* (CN; KWC). Fairly common at Woods Hole, Barnstable and Acoaxet during August; identifications by kindness of K. V. Krombein.

Myzinum 5-cinctum (Fabr.).—4 ♀♀, 3 ♂♂ at flowers of *Achillea millefolium* (JAM; KWC); very common at Woods Hole from July through August.

MUTILLIDAE

Dasymutilla gibbosa (Say).—1 ♀, 2 ♂♂ on beach near Typha Pond (KWC); also taken at Woods Hole in early September.

D. lepeletierii (Fox).—1 ♂, flying over beach in lee of embankment (KWC); frequent at Woods Hole during August.

FORMICIDAE

Myrmica americana Weber.—(KWC); also recorded from Woods Hole by Sturtevant (1931).

M. emeryana Forel.—Recorded from Penikese by W. M. Wheeler; see Coker, 1926.

Pheidole pilifera (Roger).—(KWC); Wheeler (1906) records this ant from Naushon Island of the Elizabeth chain.

Crematogaster lineolata (Say).—(KWC); both Wheeler (1906) and Sturtevant (1931) record this ant from Woods Hole, where I too have taken it commonly.

Lasius (Lasius) alienus americanus Emery.—Recorded from Penikese by W. M. Wheeler, see Coker (1926); Wheeler (1906) and Sturtevant (1931) record this ant from Woods Hole, where I also have taken it.

Lasius (L.) niger neoniger Emery.—(KWC); recorded by Sturtevant (1931) from Woods Hole, where I too have taken it.

Lasius (Chthonolasius) brevicornis Emery.—(KWC); recorded from Penikese by W. M. Wheeler in Coker (1926), and from Woods Hole by Wheeler (1906), Sturtevant (1931), and myself.

VESPIDAE

Rygchium hidalgo boreo-orientalis (Bequaert).—1 ♀, 1 ♂ from flowers of *Achillea* and *Daucus* (CN; KWC). I have taken this wasp at Woods Hole (Cooper, 1950) and on Nonamesset Island of the Elizabeth chain from July through mid-September.

Stenodynerus (Stenodynerus) anormis (Say).—4 ♀♀, 1 ♂ at flowers of *Daucus* and *Nepeta cataria* (HK; KWC); also taken at Woods Hole in August.

Stenodynerus (St.) clypeolatus (Dalla Torre).—2 ♀♀ at flowers of *Daucus* (HK; KWC); also taken at Woods Hole in June.

Stenodynerus (Parancistrocerus) pennsylvanicus (Saussure).—1 ♂, (CN); rather common at Woods Hole and on Nonamesset Island from July through mid-September.

POMPILIDAE

Episyron biguttatus (Fabr.).—1 ♀, 2 ♂♂ at flowers of *Daucus* (KWC); common at Woods Hole and on Nonamesset Island from July through August.

E. quinquenotatus (Say).—4 ♂♂ at flowers of *Daucus* (CN; KWC); occurs at Woods Hole from June through August, and I have also taken this species at Acoaxet in August.

Anoplius (Anoplius) ithaca (Banks).—1 ♀ (JAM); identification of this wholly unexpected wasp was very kindly verified by H. E. Evans.

Anoplius (Arachnophroctonus) marginalis (Banks).—2 ♀♀, 1 ♂ at flowers of *Daucus*, as well as one female hunting at grassy margin of beach (KWC); very common at Woods Hole in July and August.

Anoplius (Ar.) relativus (Fox).—2 ♂♂, at flowers of *Achillea* and *Daucus* (KWC); also taken at Woods Hole in August.

Anoplius (Pompilinus) marginatus (Say).—2 ♀♀, 2 ♂♂ at flowers of *Daucus* (KWC); very common at Woods Hole and on Nonamesset and Naushon of the Elizabeth chain from July through mid-September.

Anoplius (Lophopompilus) atrox (Dahlbom).—1 ♀, 1 ♂ at flowers of *Daucus* (KWC); also taken at Woods Hole and on Nonamesset Island in August and early September.

SPHECIDAE

(*Larrinae*)

Lyroda subita (Say).—6 ♀♀, 3 ♂♂ on sandy patch of grassy beach at northeastern end of the main body of Penikese (CN; KWC). One female wasp was captured while dragging a paralyzed juvenile female *Nemobius fasciatus* through a patch of of exposed grassroots. Also common on Nonamesset Island in August.

Tachysphex tarsatus (Say).—1 ♀ (KWC); also taken at Woods Hole, Nonamesset Island, and Barnstable dunes in July and August.

Tachysphex terminatus (Smith).—2 ♀♀, 3 ♂♂ (including 1 mated pair) in company with *Lyroda* (KWC); common at Woods Hole and on Nonamesset Island (also in the company of *Lyroda*) in August.

(*Sphecinae*)

Sphex (Prionony x) pubidorsus (Costa).—1 ♀, hunting among grassroots in protected hollow (KWC); I have also taken this wasp at Barnstable in August.

Sphex (Sphex) ichneumoneus (Linn.).—1 ♀, 2 ♂♂ at *Daucus* and *Nepeta* (CN; KWC); common everywhere on the Cape in my experience.

Podalonia violaceipennis (Lepel.).—1 ♀, 2 ♂♂ (CN; HK); frequent at Woods Hole July through mid-September.

Ammophila kennedyi (Murray).—1 ♂ at flowers of *Achillea* (KWC).

Ammophila placida Smith.—1 ♀ (CN); common at Woods Hole and Nonamesset Island from mid-June through mid-September.

Sceliphron caementarium (Drury).—1 ♀, 2 ♂♂ at *Daucus* flowers, and nesting on old buildings and ruins (CN; KWC); abundant at Woods Hole from June through mid-September.

(*Nyssoninae*)

Epibembix spinolae (Lepel.).—4 ♀♀, 4 ♂♂, common on all sandy patches, and at *Daucus* and *Nepta* (CN; HK; KWC); common at Woods Hole, Nonamesset Island, Barnstable, Provincetown, and Acoaxet from July to September.

(*Philanthinae*)

Philanthus gibbosus (Fabr.).—3 ♀♀ at *Daucus* flowers (KWC); common at Woods Hole through the summer.

(*Crabroninae*)

Lestica (Solenius) interrupta (Lepel. et Brullé).—1 ♂ at flowers of *Daucus* (KWC); frequent at Woods Hole in July and August.

Oxybelus emarginatus Say.—1 ♀ (KWC); also collected at Provincetown, Barnstable, and Nonamesset Island in August, as well as at Woods Hole in July and August.

O. quadrinotatus Say.—1 ♀ (KWC); also occurs at Woods Hole in August.

It is difficult to guess at how complete this list may be for August's wasps on Penikese. Certainly it is a complete record for every species seen by me on the island, for none was seen that was not captured. But the wind was so strong and per-

sistent that only larger wasps, or those small ones whose niches included protected hollows, were on the wing. Although the inhabitants of a small island such as Penikese are always of special interest, a glance over the list of those wasps found produces few surprises, lest it be that so many forms were found in an environment that seems so unpromising. All of the species are known from immediately adjoining localities and states, and the fauna is largely Transitional.

The one genuinely surprising record is that of *Anoplius ithaca* which, on the basis of a very extensive collecting experience and study, had seemed to Evans (1948, 1951) to be a wasp of local occurrence, confined to the very special habitat of rocky stream beds (as, for example, along the Westfield River in Hampshire Co., Mass.). Now Penikese lacks streams and running waterways but, owing to its morainal origin and the persistent harshness of wave and wind action, possesses extensive rocky tracts, especially along its western margins. Perhaps, then, stretches of exposed boulders, scattered rocks and gravels provide *ithaca's* special environmental needs. If this be the case, then streamside habitats would be the most frequent mainland but inland localities of the sort *Anoplius ithaca* requires, for only along waterways would rocky beds and stretches commonly be found that remain uncovered by soil and organic debris. Along the coast, *A. ithaca* may be expected to frequent some boulder strewn, stony beaches.

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Collection and Laboratory Maintenance of Dytiscidae (Coleop.)

By Edward S. Hodgson, Department of Zoology,
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Certain species of Dytiscidae, notably *Laccophilus maculosus* Germ., have recently proven to be excellent experimental animals for studies on the physiology of chemoreception (Hodgson, 1951; Physiol. Zool. 24: 131–40). The smaller forms such as *Laccophilus* and *Coptotomus* can usually be collected in large numbers from grassy banks of permanent ponds as are usually found at fish hatcheries. They are easy to transport alive in water or in containers half filled with wet grass.

When the beetles are being used in the laboratory, it is often desirable to keep large stocks on hand, and due to the cannibalistic habits of the beetles, this poses a considerable problem. The following method has been used with success in our laboratory for two years. Aquaria are filled with tap water and bricks placed on the bottoms of the aquaria; the bricks are stood on edge. The water is kept in motion by bubbling air from a compressed air line or aquarium aeration pump through the water. When the beetles are introduced into the aquarium, they cling to the bricks and move about very little. This is an important factor in reducing the mortality rate in stocks over periods of several weeks, since much of the mortality results from chance encounters of swimming beetles. An aquarium holding 40 gallons of water will accommodate about 1000 beetles in this fashion without overcrowding—smaller aquaria holding proportionately less. With such an arrangement, only about 10% of the beetles will fall victim to cannibalism each month. Care must be taken to make sure that the water is not moving so rapidly that the beetles cannot reach the surface periodically to replenish their air supplies. In our cultures, wooden floats were provided, which permitted the beetles to dry themselves at intervals during feeding. Wire screening must be used over the aquaria to prevent the escape of flying beetles.

Meat scraps and fish food ("Tropicala No. 2") were fed daily, and the aeration stopped only for a feeding period of one hour. The formation of a surface film is prevented by the aeration and resulting currents of water, and any excess food accumulating on the bottom of the aquarium seems to do no particular harm.

The beetles have frequently been observed mating but no larvae have been seen in the cultures; possibly any larvae which appeared were eaten by the adults. Because of the abundance of the adults, no attempt has been made to find special methods of rearing the beetles through a complete life cycle.

Two New Species of Milichiidae, with Miscellaneous Notes on the Family (Diptera)

By Curtis W. Sabrosky, Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, U. S. Department of Agriculture

In a recent study of the dipterous family Milichiidae, two new species have been recognized and some miscellaneous notes accumulated. Revisionary work is being continued on two large genera, *Desmometopa* and *Milichiella*, but the notes presented here are not relevant to that study.

Eusiphona flava, new species

Like the genotype, *Eusiphona mira* Coq., in habitus and structural characters, but predominantly yellow.

Female.—Yellow to orange-yellow, only the arista, front, upper half or more of occiput, mesonotum except laterally, basal portion of disk of scutellum, and metanotum black in ground color; front densely pollinose and appearing golden yellow from certain aspects; mesonotum dull, yellowish-gray pollinose with a suggestion of three brown stripes, when viewed from behind; lateral yellow areas of mesonotum include the humeri and notopleural and supra-alar areas.

Head in profile as in *mira* (cf. Curran, 1934, "The Families and Genera of North American Diptera," p. 335, fig. 12), but the proboscis proportionately longer, each section 1.5 times the height of the head; wing approximately as figured by Curran (l.c., fig. 5)., but the first posterior cell only slightly broadened opposite the hind crossvein, the anterior crossvein directly behind the junction of first vein with costa, and thus the penultimate section of fourth vein nearly ⅘ the length of that of the third vein.

Length, 3 mm.

Holotype, Kanab, Utah, Aug,. 17, 1950 (G. F. Knowlton). Type No. 61616 in the U. S. National Museum, deposited through the courtesy of the collector.

No other species of the genus has been described since Coquillett (1897) erected it for a single species, *mira,* then presumed to belong to the Larvaevoridae (Tachinidae). The genotype is an entirely black fly and thus strikingly contrasted with the new species.

Stomosis Melander

Stomosis Melander, 1913, Jour. New York Ent. Soc. 21: 242. Type, *Desmometopa luteola* Coquillett (Monobasic.)

Siphonomyiella Frey, 1919, Öfvers. finska Vetensk. Soc. Förh. 60A, no. 14, p. 16. Type, *Siphonomyiella rufula* Frey (Monobasic). New synonymy.

The description and the figures of head and wing of *Siphonomyiella,* described from Rio de Janeiro, Brazil, agree completely with the North American *Stomosis.* I have seen no Brasilian material of the genus, and cannot comment on the status of *Stomosis rufula* (Frey) [new combination]. The genotype, *luteola* (Coq.), was described from Williams, Arizona, has been recorded from Texas (Melander, 1913), and is known to me from Lafayette, Indiana, Falls Church and Alexandria, Virginia, and East Lansing, Michigan. At Falls Church, Virginia, April 15, 1951, it was reared from debris in the crotch of a tree (W. W. Wirth). In the U. S. National Museum there is a long series from Higuito, San Mateo, Costa Rica (Pablo Schild), which was apparently correctly determined by J. M. Aldrich as *luteola.*

Hemeromyia washingtona (Mel.)

Paramadiza washingtona Melander, 1913 (Sept.), Jour. New York Ent. Soc. 21: 246 (Washington).

Hemeromyia washingtona (Melander) Melander, 1913 (Oct.), Psyche 20: 169.

Hemeromyia nitens Melander, 1913 (Oct.), Psyche 20: 169. (Melander's statement that "*Hemeromyia nitens* Malloch" is a synonym of *washingtona* was based on the type of *nitens,* but the latter had not yet been published and the name must therefore be credited to Melander. When Malloch's paper did appear, the name was given as *nitida.*)

Hemeromyia nitida Malloch, 1913 (Dec. 6), Proc. U. S. Nat. Mus. 46: 146 (Colorado).

As far as I am aware, only two specimens of this species have been reported, the types of *washingtona* and *nitida*. A new record of this rare species suggests that its obscure habitat is the reason why it has not been found more often. Four specimens were reared by H. B. Morlan on April 19, 1952, at Santa Fe, N. Mex., from pupae collected on March 27, 1952, in a nest of *Peromyscus truei*.

Neophyllomyza anuda (Curran), new combination

Desmometopa anuda Curran, 1936, Proc. Calif. Acad. Sci. 22 (1): 45, 46 (Anuda Island, Solomons).

Hennig (1939, Arb. über Morph. u. Taxonom. Ent. Berlin-Dahlem 6: 88) suggested that *anuda* was probably a subspecies of *Desmometopa palpalis* Meijere, but I find from a paratype kindly loaned me by Dr. Curran that the species is a *Neophyllomyza*. As now recognized, the latter is characterized by having two divaricate upper orbital bristles, and the third and fourth costal sectors equal in length. I may point out also that in the species known to me, the crossveins are approximated compared with the related genus *Phyllomyza*.

Several specimens of *anuda* are before me from Guadalcanal Island, 1944 and Jan. 28–Feb. 2, 1945 (C. O. Berg). A number of species of *Neophyllomyza* are known from Java and Formosa, but I have no material available for comparison to determine further the status or relationships of *anuda*.

COSTALIMA new genus

Near *Microsimus* Aldrich, and somewhat more distantly related to *Phyllomyza* and *Neophyllomyza*, but with two pairs of divergent upper orbitals, three pairs of strong and widely-spaced dorsocentral bristles, no prescutellar acrostichals, and a pair of strong proclinate bristles on the lunule.

Head broad and short; occiput strongly concave, viewed from above; front broad, over half the width of the head, with broad shining parafrontals and a shining frontal triangle that reaches to the lunule; eyes sparsely short haired; face concave; palpi slender, not unusually enlarged and only slightly projecting be-

yond the oral margin, approximately the same in both sexes, sparsely and finely bristled; proboscis short, fleshy, inconspicuous; antennae porrect, second and third segments subequal in length, third broader than long, subquadrate; arista pubescent; two pairs of well-separated lateroclinate upper orbitals and two pairs, one strong and one short slender, of convergent lower orbitals; lunule with a pair of strong, widely separated bristles that are convergent at tips; the proclinate and divergent ocellars, cruciate postverticals and divergent outer and convergent inner vertical bristles all well developed.

Thoracic chaetotaxy: Three equally strong and widely spaced dorsocentral bristles, the anterior one opposite the end of the mesonotal suture; no prescutellar acrostichals; 1 long humeral, 1 presutural, 1 + 1 notopleural (weak), 1 supra-alar (in the prealar position), 1 intra-alar, 2 postalar (the posterior much weaker than the anterior), 2 scutellar, 1 propleural and 1 stigmatal (both pale and weak, and almost hairlike), 1 sternopleural; mesopleuron bare; scutellum bare outside the bristles; mesonotal hairs sparse.

Wing similar to *Microsimus* and *Phyllomyza*, costa extending to fourth vein, and the second vein long and curving throughout its length, the third costal sector notably shorter than the fourth; crossveins well out on the disk of the wing, beyond the apex of first vein, the fore crossvein at approximately the outer two-thirds of the discal cell, and separated from the hind crossvein by approximately the length of the latter; discal cell broad distally, the hind crossvein well over twice the length of the fore crossvein.

Type of genus: *Costalima myrmicola*, new species.

The genus is dedicated to the distinguished Brasilian entomologist, Dr. A. M. da Costa Lima.

Costalima myrmicola new species

♂, ♀—Reddish yellow to brown, the intensity of color possibly depending on the maturity of the specimens; in the darkest individual, the arista black, frontal triangle, occiput and small spot at base of arista brown, mesonotum, scutellum and abdomen

dark brown, and the rest of body and legs yellow; in paler specimens the head and dorsum of thorax reddish yellow.

Head broad, its length only one-third the breadth and only slightly less than its height; width of cheek nearly three-tenths the height of an eye and half the breadth of the third antennal segment. Thoracic bristles long, strong and conspicuous except for the notopleural, supra-alar, intra-alar and posterior postalar; apical scutellar bristles long, over twice the length of the basal scutellars. Fifth abdominal segment with long and strong marginal bristles, those on the other segments ordinary.

Length, 1.5–2 mm.

Holotype female, *allotype*, and three paratypes (♂, 2♀♀), Viçosa, Minas Gerais, BRASIL, June 10, 1944, in nest of *Azteca* ant in *Cecropia* tree trunk (H. L. Parker, No. 953.20). Type No. 61617 in the U. S. National Museum.

A single female from Barro Colorado Island, PANAMA CANAL ZONE, January 1947 (N. L. H. Krauss), is similar to the above, but I am not sure whether it is *myrmicola* or represents a new but very closely related species.

Polyvinyl Alcohol with Lacto-phenol, a Mounting and Clearing Medium for Chigger Mites [1, 2]

By LOUIS J. LIPOVSKY

Polyvinyl alcohol with lacto-phenol has been used as a mounting medium for chiggers at the University of Kansas since 1947. Early preparations were made without specific attention given to the heat or the amount of heat applied to clear the medium, or to the age of the medium; however, the proportions were generally as given by Wilbur G. Downs, 1943 (Science 97 (2528): 539–540). These mixtures were unpredictable. Of approximately 15,000 chiggers mounted, hundreds have required re-

[1] The studies upon which this paper is based were conducted under contract, N6 ori 220 Task Order II, between the University of Kansas and the Office of Naval Research.

[2] Contribution number 789 from the Department of Entomology, University of Kansas.

mounting for several reasons: the medium retreated from the specimen, sometimes forming maze-like air spaces around it; not infrequently, the refractive index became unsatisfactory; following prolonged drying, the medium contracted sufficiently to fracture the cover glass over the specimen by drawing it too close to the slide. These were the most serious difficulties experienced other than some crystallization of the phenol, which can be serious when the specimen is extensively involved. These inconsistencies have been eliminated by following a standardized procedure in the preparation of the medium.

The polyvinyl alcohol (PVA) used (Grade RH-349, E. I. du Pont de Nemours Company) is a fine white powder. It is wettable in cold water but will not wet or disperse in warm or hot water. The ingredients and proportions are those given by Downs: 22 c.c. of 85 per cent lactic acid (analytical agent), 22 c.c. of pure phenol, and 56 c.c. of water saturated with PVA powder. The PVA is sifted slowly through a fine mesh screen onto the surface of the water to insure an even and gradual dispersion; the screening also removes undesirable foreign matter as well as the larger granules of PVA, thus eliminating the problem of filtering. The amount of PVA added to the water is limited to the total amount wetted with stirring, and until the mixture becomes a thick, crumbly, milky paste. It is not necessary to clear this mixture in a hot water bath.

The phenol, generally crystalline, is heated slightly until liquified; the lactic acid (which prevents the recrystallization of the phenol) is added to the phenol and mixed. This mixture of acids is then added to the PVA paste and stirred. This combination should not be heated to clear; clearing will take place gradually. Soon after the acids are added, the PVA lactophenol mixture becomes extremely viscous and mucoid; however, as it continues to clear, the viscosity of the mixture decreases and it liquifies within a few hours to the consistency of a light syrup. This final mixture is stored in dark bottles or jars to prevent discoloration and other undesirable changes resulting from prolonged exposure to light. The mixture is now ready for use and should be dispensed only in small quantities as needed for several week periods. When exposed to light for a number of months, it becomes brown in color, appears to

thicken without apparent evaporation, and becomes unsatisfactory for mounting chiggers.

It is known that some workers who have used PVA in some form or another have commented upon the erratic results often obtained, and for this reason have discontinued its use in slide preparations. Total acids in excess of 50 per cent by volume will result in a medium which may remain tacky and unhardened. With less than the recommended amount of acids the medium may not clear sufficiently to produce satisfactory mounts either in refractive qualities or in the embedding qualities, although the medium becomes appreciably harder upon drying. Furthermore, slides prepared with medium deficient in acids require an excessive number of hours to soak the cover glasses free for remounting; in addition, strands of undissolved medium on the specimens cannot be removed readily, and when remounted the medium does not appear to be as refractive around the edges of the specimens. This condition is especially noticeable when examined under the phase-contrast microscope. The fracturing of cover glasses over the embedded specimens is the result of an inadequate amount of PVA in the mixture.

Better preparations are obtained from specimens which have been preserved for at least a week in 70 to 80 per cent alcohol than from fresh material; however, fresh specimens can be mounted when quick determinations are needed. The mounting of fresh specimens usually results in poor definition.

The following procedure for mounting chiggers and other micro-invertebrates has proved very satisfactory. Chiggers are removed individually from alcohol and centered on a clean slide. A fine tipped medicine dropper may be used for this operation and the excess fluid may be blotted off the slide. The mounting medium is then placed on the centered specimen followed by the placement of the cover glass. The slide is then heated to remove all bubbles which may be present or which may form upon heating. A temperature controlled hot plate is best suited for this purpose. After the bubbles are removed, gentle heating is continued on a slide warmer. After approximately 24 hours, the specimen should be sufficiently cleared and the cover glass will be set for immersion oil use. Exposure to heat seems necessary for good quality slide preparations.

A Bibliographic Note on Three Species of Ephemeroptera Described by Say

The place of publication of the original description of three species of mayflies described by Thomas Say apparently has been consistently mis-cited for more than 80 years. The species involved are *Siphlonurus alternatus, Hexagenia bilineata,* and *Ephoron album.* They were described by Say in the Appendix to Volume II of Keating's *Narrative of an Expedition to the Source of St. Peters River, Lake Winnepeek, Lake of the Woods &c. &c. by order of The Hon. J. C. Calhoun, Secretary of War, under the command of Stephen H. Long Major U. S. T. E.* (Cary and Lea, Philadelphia, 1824), pp. 303–305 (Reprinted by LeConte, 1859, in: *The complete writings of Thomas Say,* Vol. 1, pp. 203–205). An account of the swarming of *Ephoron album* appears on pp. 114–115 of the same volume. Correct citations were given by Hagen (1861) in his *Synopsis of the Neuroptera of North America,* but apparently starting with Eaton (Trans. Ent. Soc. London, 1871: 8) the citation is given as Volume 2 of the Western Quarterly Reporter, and dated variously as 1823 or 1824. Eaton (*loc. cit.*) indicates that he did not see the original of Say's work and apparently has made an error in reading the LeConte reprint. The error has been faithfully repeated by numerous writers since that time.

—George F. Edmunds, Jr., University of Utah.

Pseudocneorrhinus bifasciatus Roelofs Extending Its Range in New Jersey (Col. Curculionidae)

This weevil which is the *P. setosus* of American authors, according to the Blackwelders' "Fifth Supplement to the Leng Catalogue of Coleoptera of America, North of Mexico" (1948), is extending its range in New Jersey. It is listed in the Leng & Mutchler "Catalogue of the Coleoptera of America, North of Mexico" (1927), from Connecticut and Japan. Introduced from Japan, it was reported from Connecticut in 1923. It was first noted in New Jersey at South Orange during September,

1947, the adults having been taken while feeding on the leaves of privet, mimosa, Japanese barberry, rhododendron and a few other ornamental plants. Shortly afterward it was collected at West Orange, Maplewood, Orange and Newark, all in New Jersey. It has also been reported from New York City.

During September, 1952, Mr. Robert J. Sim collected the species at Morrestown, N. J., where it was doing considerable damage to the foliage of azalaes and other shrubs. In spite of its injury to foliage, it does not appear at present to be an insect of prime economic importance. During the thirty years since it was reported from Connecticut, the species has no doubt invaded a larger area of New Jersey than is indicated by the localities mentioned.—HARRY B. WEISS.

The Lone Star Tick in Staten Island, New York (Acarina: Ixodidae)

By JOHN W. H. REHN, First Army Area Medical Laboratory, New York 7, N. Y.

The Lone Star Tick, *Amblyomma americanum* (Linnaeus) is usually considered to breed as far north as southern New Jersey and Pennsylvania. The only records of this species north of this area are either very old, 1740–1830, or clearly represent accidental importations.[1]

In May, 1952, a partially engorged female *Amblyomma americanus* was removed from a child at Fort Wadsworth, Staten Island, and sent to this laboratory for identification. The child had not been off this island for several months and left the military installation only to go to school. Therefore, the tick was undoubtedly picked up on this island. Investigation failed to recover additional examples. However, it seems probable that individuals have been introduced from the south and the species may now be established on Staten Island.

[1] BEQUAERT, J. C. 1946. The ticks, or Ixodoidea, of the northeastern United States and eastern Canada. Entomologica Americana, XXV (M.S.), p. 183.

Current Entomological Literature

Compiled by VENIA T. PHILLIPS, Librarian

Academy of Natural Sciences of Philadelphia

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania pertaining to entomology, including all arthropods except Crustacea. Coverage will be world-wide as regards major contributions to systematics as well as for all papers on morphology, physiology, embryology, etc. In addition, for species from the Americas and the Pacific (Nearctic, Neotropical and Polynesian regions) all minor contributions to taxonomy, distribution, etc., will also be recorded.

This list gives references of the year 1952 unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For other records of general literature and for economic literature, see the Bibliography of Agriculture, Washington, and the Review of Applied Entomology, Series A, London. For records of papers on medical entomology see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of periodicals and serials published in our January and June issues. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—Bartlett, B. R. and J. C. Ortega.—Relation between natural enemies and DDT-induced increases in frosted scale and other pests of walnuts. [76] 45: 783–784. **Beard, E.**—The early-American silkworm. [Frontiers] 17: 35–38, 62, ill. **Belkin, J. N. and W. A. McDonald.**—Preparing Lepidoptera for class study. [85] 6: 61–63, ill. **Box, H. E.**—Informe preliminar sobre los taladradores de la caña de azucar (Diatraea spp.) en Venezuela. [Bol. téc. Div. Ent., Inst. Nac. de Agr. Venezuela] 2: 1–72, ill. **Brown, F. M.**—Statistics and taxonomy again. [85] 6: 67. **Brues, C. T.**—Some evolutionary features inherent in the insect faunas of the tropics. [Quart. J., Fla. Acad. Sci.] 15: 149–154. **Campbell, W. V. and R. E. Hutchins.**—Toxicity of insecticides to some predaceous insects on cotton. [76] 45: 786–789, 828–833. **Corbet, P. S.**—(See Smaller orders.) **Flanders, S. E.**—A method for transferring infestations of purple scale. [76] 45: 891. **Fleming, W. E., H. W. Allen and F. W. Poos.**—Traber Norman Dobbins, 1896–1952. [76] 45: 903. (Obit.) **Forbes, W. T. M.**—Footnote to Brown's Statistics. [85] 6: 67. **Harris, L.**—Henry W. Eustis. [85] 6: 77. (Obit.) **Jackson, W. B.**—Population of the wood-mouse (Peromyscus leucopus) subjected to the application of D.D.T. and parathion. [49] 22: 259–81. **Keilbach, R.**—Schalenasymmetrien bei rezenten und fossilen Ostrakoden und das Alter der asymmetrischen Flügellage bei Insekten. [160] 149: 147–57. **Klots, A. B.**—Marguerite S. Forsyth. [85] 6: 76–77. (Obit.) **Knowlton,**

G. F.—Range entomology. [Utah Agr. Expt. Sta. Mimeo. Sheet] 391: 1–3. **Linsley, E. G., J. W. MacSwain and R. F. Smith.**—Outline for ecological life histories of solitary and semi-social bees. [50] 33: 558–567. **Ludwig, A.**—Die Blattminen des Siegerlandes und der angrenzenden gebiete. (Includes classified list of miners and a long list of host plants.) [Abhand. Landesmuseum f. Naturk. zu Münster in Westfalen] 15, heft 2. 48 pp. **McGregor, S. E. and T. F. Buehrer.**—A nectarometer. [76] 45: 895. **Martorell, L. F. and J. Adsuar.**—Insects associated with papaya virus diseases in the Antilles and Florida. [76] 45: 863–869. **R., W. A.**—Obituary. Keith Collingwood McKeown. [Aust. Mus. Mag.] 10: 371. **Roan, C. C.**—Tagging oriental fruit flies with radioactive phosphorus for field-movement studies. [76] 45: 826–828. **Rosine, W. N.**—Qualitative distribution of aquatic invertebrates among the plants in Muskee Lake, Col. [Jr. Col.-Wyo. Acad. Sci.] 4: 92 (Abstract). **Schwenke, W.**—(See Lepidoptera.) **Shoumatoff, N.**—Some statistical concepts in taxonomy. [85] 6: 64–66. **Smith, M. V. and G. F. Townsend.**—A method of measuring pollinator populations on field crops. [43] 84: 314–316, ill. **Stark, R. W.**—Analysis of a population sampling method for the lodgepole needle miner in Canadian Rocky Mountain parks. [43] 84: 316–321. **Suomalainen, E.**—Harry Federley (1879–1951). [85] 6: 57–60. (Obit., port., bibl.) **Swenson, L. E.**—Cleaning skeletal material with meal worms. [Jr. Col.-Wyo. Acad. Sci.] 4: 103. (Abstract.) **Taylor, L. F., J. W. Apple and K. C. Berger.**—(See Anatomy.) **Vandoni, C.**—Augusto Molinar (1896–1952). [Natura, Milan] 43: 39–44. (Obit., port.) **Z., E.**—Karl Escherich, 1871–1951. [Graellsia] 8: 113–115, 1950. (Obit., port.)

ANATOMY, PHYSIOLOGY, MEDICAL—Applegarth, A. G.—(See Arachnida.) **Audy, J. R.**—(See Arachnida.) **Barnes, H. F.**—Studies of fluctuations in insect populations. XII. [77] 39: 370–73. *Id.* XIII. *Ibid.* 374–78. **Bartlett, B. R. and J. C. Ortega.**—(See General.) **Beall, G.**—(See Lepidoptera.) **Benson, A.**—Distribution of certain riffle insects in a foothills stream with respect to current velocity. [Jr. Col.-Wyo. Acad. Sci.] 4: 93–94 (Abstract). **Brian, A. D.**—(See Hymenoptera.) **Bruneau de Miré, P.**—(See Orthoptera.) **Campbell, W. V. and R. E. Hutchins.**—(See General.) **Clark, A. M. and C. J. Mitchell.**—Effects of x-rays upon haploid and diploid embryos of Habrobracon.

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ORTHOPTERA—Alexander, G.—The Orthoptera of Dinosaur National Monument. [Jr. Col.-Wyo. Acad. Sci.] 4: 101–102 (Abstract). **Bruneau de Miré, P.**—Observations sur le comportement de Schistocerca Gregaria Ph. solitaria. [105]: 3, p. 48–54. **Chopard, L.**—Orthoptéroïdes. (Faune de France, v. 56, 359 pp., ill., Paris, P. Lechavelier, 1952.) (Rev. by G. R. in [138] 57: 112.) **Fraser, W. R.**—Stridulation by a female Chortippus (Stauroderus) (Acrididae). [142] 4: 84. **Goodwin, T. W.**—(See Anatomy.) **Grassé, P.-P.**—Déterminisme de la pigmentation chez Acrida turrita

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